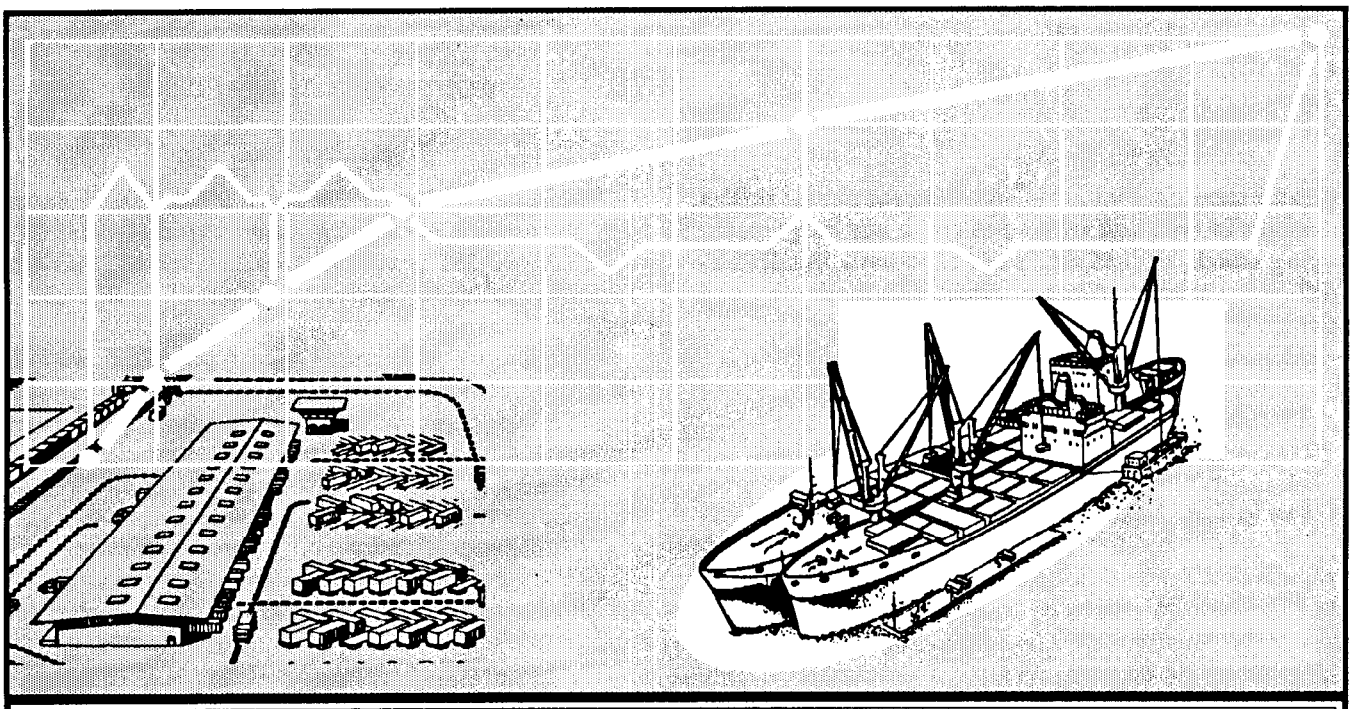

CHAPTER 3

MARINE TERMINAL OPERATIONS

This chapter implements STANAG 2166.

INTRODUCTION

The purpose of water terminal operations is to place equipment and supplies where and when needed. History has proven that 90 to 95 percent of unit equipment and sustainment cargo moves by SEALIFT and through marine terminals. This flow of cargo requires coordination between the strategic and operational level of war transportation organizations. Army logisticians must plan and coordinate the movement of this cargo from CONUS (SPOE) to the final destination in the theater (SPOD).

To assure the success of the operation, the terminal operators, as well as other agencies, will arrive in theater early to begin the discharge of arriving ships. It will be vital that the terminal units have the required MHE and personnel to conduct ship discharge operations. Planners should establish terminals capable of handling palletized, containerized, bulk liquid, and RO/RO cargo. Problem areas must be identified and solutions reached either by direct coordination with the mode operators and receivers through command channels. Refer to FM 55-50 for more information on water terminals operations.

PLANNING PHASES

MTMC and MSC, based on availability, select the types and numbers of vessels used to support a TO. Vessel selection is based on the anticipated availability of marine terminals and the three phases of ship's planning. These phases are also important to the

theater terminal planners. The different phases reflect changes in type and volume of cargo and cargo packaging which, in turn, are more efficiently handled by different varieties of vessel types. The three planning phases consists of the following:

- ❑ Initial phase.
- ❑ Tactical resupply phase.
- ❑ Sustained resupply phase.

Initial Phase

The initial phase introduces unit equipment. It depends greatly on the capability of discharging RO/RO vessels and barge-carrying vessels (LASH/SEABEE). In this phase, the military terminal organization is in the early development stages. It cannot fully handle large numbers of ships and large volumes of cargo. Ocean freight consists mostly of unit moves that require unit integrity of personnel, supplies, and equipment. RO/RO vessels and barge-carrying ships are desirable because of the high volume of vehicles being transported and the need to expedite vessel discharge and port clearance.

Tactical Resupply Phase

The tactical resupply phase addresses the time when terminal facilities are being operated and improved. Neither they nor the land transportation net can handle large volumes of containers discharged from non-self-sustaining containerships. Conventional break-bulk vessels and self-sustaining containerships off-load at fixed ports and through LOTS environments. The level of unit moves has dropped greatly. Accordingly, the percentage of vehicles in freight is reduced.

Sustained Resupply Phase

The sustained resupply phase occurs when the receiving ports and the theater transportation net can receive large volumes of containers discharged from large, non-self-sustaining containerships. The terminal organization is well developed. However, the availability of fixed facilities and the quantity and types of vessels affect port capacity. Maximum capacity is afforded by matching vessels to appropriate terminals.

MANAGEMENT AND OPERATION OF STRATEGIC, COMMON-USER CONTINGENCY SEAPORTS

Background

The MTMC is generally considered DOD's expert on seaport operations and capabilities. A USTRANSCOM component command, MTMC performs the following activities on a routine or ongoing basis:

- ❑ Manages and operates 10 CONUS and 15 OCONUS common-user seaports.
- ❑ Opens, manages, and operates contingency ports supporting military exercises.
- ❑ Books DOD cargo with commercial carriers.
- ❑ Contracts for terminal services.
- ❑ Interfaces with HNs on port-related issues.
- ❑ Prepares ship manifests and other documents.
- ❑ Develops and operates seaport management systems.
- ❑ Conducts surveys of seaport capabilities throughout the world.

Despite this acknowledged expertise in port management, theater CINCs do not always call on MTMC to assist in planning SPOD operations. MTMC's supporting role in implementing these plans may be inconsistent or ill-defined. Lacking specific doctrine and CAAs, theater port management has been arranged on an ad hoc basis. The following recent deployments confirm this point:

- ❑ Desert Shield/Desert Storm (Saudi Arabia). MTMC was not responsible for managing SPODs during deployment. Gradually, MTMC was assigned theater responsibility and eventually took over port management during the redeployment and retrograde phases.
- ❑ Restore Hope (Somalia). MTMC deployed three personnel temporarily to conduct port assessments. They were not assigned a port management role.
- ❑ Rwanda Hope (Somalia.) MTMC deployed to Mombasa, Kenya, and performed the full range of port management functions.
- ❑ Uphold Democracy (Haiti). MTMC was among early deployers but did not have full responsibility for port management.
- ❑ Vigilant Warrior (AWR3 discharge). MTMC was among the first on the ground; providing the CINCCENT with predeployment planning for port

operations, contracting for facilities and commercial stevedore support, and performing the full range of port management activities.
Experience gained in these operations demonstrates the need for and value of more consistent port management doctrine and seaport organization similar to that employed at aerial ports by AMC. DOD has a substantial investment in the CONUS port infrastructure. However, there is no similar deployable management force structure and doctrine for operating overseas port facilities.

A port management organization with a family of port and cargo management systems is needed to incorporate advances in information processing and communication technologies. Reduced inventory levels and increased dependence on direct vendor support, as envisioned by the BD concept, also require such an organization. To support the ITV/TAV elements of BD, a strategic distribution system must be effectively managed. Movements must be documented at every echelon in an accurate and timely manner.

A set of responsibilities has been defined that will capitalize on MTMC's expertise and core competencies at contingency SPOEs/SPODs. It solidifies MTMC's role in all scenarios as an early deployer to any theater to provide the CINC with expert port management, transportation engineering, and transportation systems support. The result will be synchronization of intertheater movement between strategic and common-user SPOEs and SPODs. In laying the groundwork for the port management concept, the following must be considered:

❑ Military capability is required to manage, and may be required to operate, the port(s) in the theater of operations.

❑ The supported CINC determines command and control relationships between units with responsibilities at theater ports.

❑ The specific responsibilities and command relationships normally detailed in the CAA will be followed.

❑ Force structure, command relationships in the operational theater, and some aspects of port management and operation functions vary from one operation to the next and will be METT-T driven based on each scenario.

❑ Army doctrine will designate MTMC as the port manager and the transportation group (composite) the port operator.

❑ Where discrepancies exist between Army doctrine and an individual CAA, METT-T and the CAA will govern.

Responsibilities

Under the port management concept, the port manager and the port operator each have specific, clearly-defined roles and functions.

Port manager. As port manager, MTMC supports the JTF/CTF/CINC staff. The MTMC performs the following functions:

❑ Participate in the CINC OPLAN development and analysis.

❑ Conduct assessments of contingency ports to include a transportation engineering assessment.

❑ Advise the CINC as to the appropriate mix of military and civilian port operating capability required for a given contingency based on METT-T.

❑ Establish liaison with designated HN port authorities for acquiring water terminal facilities and related services.

❑ Develop statements of work and contract for stevedoring and related terminal services where such services are commercially available.

❑ Operate WPS, ICODES, IBS, and other theater water terminal transportation/logistics ADP systems.

❑ Book inter- and intra-theater surface cargo on MSC controlled common-user ships and liner service.

❑ Provide common-user container management services.

❑ Administer MSC ocean carrier contracts and vessel charters.

❑ Arrange for transition of military operating capability to a commercial contract or HNS.

❑ Participate in planning and execution of redeployment.

❑ Work load the port (such as provide vessel discharge priorities, ship schedules, and manifest data to the port operator based on the theater commander's intent).

❑ Provide inter-theater documentation oversight, documentation services for MSC negotiated commercial liner contracts, and other documentation services as determined by METT-T.

❑ Provide communication/ADP technical support for transportation/logistics ADP systems related to theater water terminals.

Port operator. As port operator of a contingency SPOD, the transportation group (composite) or transportation battalion (terminal) will perform various functions. These functions include the following:

❑ Beach and port preparation and improvement.

❑ Cargo discharge and upload operations.

❑ Harbor craft services.

❑ Ship-to-shore movement of cargo and lighterage control.

❑ Heavy lift services.

❑ Beach and port clearance command and control.

❑ Cargo documentation for reception, staging, and onward movement of personnel, equipment, and supplies to provide ITV to the supported CINC.

Concept of Operations. The following actions/steps are key to properly executing the port management concept:

❑ During the TPFDD development/refinement phase of the planning process, MTMC will provide planners to the supported CINC to develop port management and port operations requirements.

❑ In crisis action scenarios, MTMC will provide planners to the supported CINC for SPOD assessment and TPFDD development.

❑ At the request of the supported CINC and at USTRANSCOM direction, MTMC will deploy an advance party to conduct port assessments, establish contact with local port authorities, and determine availability of HNS in terms of both labor and equipment. Based on the advance party assessment and other METT-T factors, MTMC will recommend the appropriate mix of military, HNS, and civilian port operating capability required to support the contingency.

❑ Prior to the arrival of the first vessel, the tailored port opening package—to include the balance of the MTMC Management Cell—will deploy to the theater to support SPOD management and operations.

❑ MTMC will perform the theater port manager function using management cells with elements located with the CINC/JTF/CTF staff and at each designated common-user SPOE/SPOD. These organizations will perform the functions necessary to control the strategic flow of cargo and information between SPOE and hand-off to the theater (see Table 3-1).

❑ MTMC's port management organizations will be provisionally staffed by preselected military and civilian personnel with the basic skills needed to perform contingency port management functions. These organizations will have a rapid transition-to-war capability since most of the assigned personnel will be performing functions similar in nature to their daily peacetime activities.

❑ Besides the personnel and skills needed to ensure port management success, port management organizations will have and be able to use high quality information management tools including WPS, ICODES, and IBS. The MTMC management cell will deploy with and operate the C31 port management center.

❑ A tailored Transportation Group or Transportation Battalion (Terminal) will normally perform port operations functions requiring US military capability. In all cases, this organization should be operational in theater before the first vessel arrives. The port operator will perform the following:

- Execute the reception, staging, and onward movement of equipment and supplies.
- Ensure the expeditious, well-documented transfer of deploying unit equipment into the theater of operations as directed by the theater MCA.

❑ In keeping with the goal of freeing military units for other possible contingencies, the supported CINC should seek to transition from a military port operation to a commercial port operation as soon as tactical conditions permit. Possible alternate port operators include HNS, third country commercial contractors, or LOGCAP. While port operators may transition between different organizations during the contingency, MTMC will perform the port manager function throughout the predeployment/deployment/redeployment process.

❑ Where HNS and/or commercial contractors can support all port operations requirements, there will be no requirement to deploy military units to perform these functions. In this scenario, only the MTMC management cell will deploy to establish and administer actual operations through commercial contracts.

Table 3-1. MTMC port management cells

	STATUS	GRADE/ OCCUPATION	A	B	C	D
Command and Control						
Commander	MIL	COL/88A	1	1	1	1
Deputy	MIL	LTC/88A	1	1	1	1
NCOIC	MIL	MSG/64Z	1	1	1	1
Clerk/Driver	MIL/CIV		1	1		
Technical Support						
Contracting officer	MIL/CIV		1	1	1	1
Communication support	CIV		1	1		
ADP systems support	CIV		2	2	1	1
Transportation engineer	CIV	2101	1	1	1	1
Operations Section						
Operations team chief	MIL	MAJ/88A	1	1		
Assistant team chief	MIL/CIV		1	1		
Operations NCOIC	MIL	SFC	1	1		
Operations administrative assistant	MIL/CIV		1	1		
Container manager	MIL/CIV		1	1		
HAZMAT/Ammunition	MIL/CIV		1	1		
Transition planner	MIL/CIV		1	1		
Chief documents supervisor	MIL/CIV		1	1		
Deputy documents supervisor	MIL/CIV		1	1		
Freight movement supervisor	MIL/CIV		6	6		
Port Management						
Commander	MIL	LTC/88A	2	1	1	1
Transportation plans officer	MIL	MAJ/88A	2	1	1	
Contract officer	MIL/CIV		2	1	1	1
Cargo officer	MIL/CIV		2	1	1	1
Movements supervisor	MIL	SFC/88N	2	1	1	
Movements supervisor	MIL/CIV		4	2	2	1
Documentation clerk	MIL/CIV		10	5	4	2
TOTAL			48	36	17	12

Cell A - ASMP deployment—operate two ports. Discharge all PREPO and strategic sealift ships for two heavy divisions by C + 30. Forty-two ships total; seven-berth surge requirement.

Cell B - LRC deployment—operate a single port. Discharge selected PREPO and eight strategic sealift ships by C + 15. Twelve ships total; three-berth surge requirement.

Cell C - Peace-enforcing and humanitarian mission. Select PREPO and four strategic sealift ships by C + 15. Six ships total; two-berth surge requirement.

Cell D - Small humanitarian mission. Three ships total by C + 15; single-berth operation.

NOTE: CIV COULD BE CONTRACTOR OR LN PERSONNEL. ACTUAL NUMBER OF PERSONNEL IS METT-T DRIVEN.

MARINE TERMINAL PLANNING STEPS

Marine terminal planning involves six basic steps developing logically from the preceding one. These steps are as follows:

- ❑ Determine the type or category of existing terminals. For example, container, RO/RO, break-bulk, special commodity (ammunition), bulk fuel, or a composite capability for multipurpose or combi-terminals.
- ❑ Estimate the existing terminal throughput capacity. This is the estimated total tonnage and numbers of personnel and containers that can be received, processed, and cleared through the terminal in a day. (A day is two 10-hour shifts plus two 2-hour maintenance periods.)
- ❑ Compute the terminal workload needed to support the operation. The workload is expressed as numbers of personnel, vehicles, containers, and STONs for noncontainerized cargo. This computation includes the total tonnage and numbers of personnel and containers that must be received, processed, and cleared through the terminal.
- ❑ Determine the repair and rehabilitation of existing facilities and/or new construction needed to increase existing terminal throughput capacity to equal the computed terminal workload. Normally, existing terminal capacity is insufficient to support the operational workload.
- ❑ Estimate the MHE needed to process the required workload. Equipment such as tugs, barges, and floating cranes; and the personnel to man them, are identified in TOE 55-530.
- ❑ Estimate the units, individuals, and supervisory and command elements needed to operate the terminal. TOE 55-560 lists team personnel and equipment available to augment terminal operations. Security personnel requirements should also be included in case MP or HNS is not available.

PLANNING CONSIDERATIONS

Countering the Threat

The presence of the US in nations around the world may provoke a wide range of responses by factions, groups, or forces of an unfriendly nation. Regardless of the mission, commanders must protect their forces at all times. Rear operations can be the target of the enemy's deep attack. To preclude diverting assets needed for close operations, commanders train and equip units involved in rear operations to protect themselves against all but the most serious threats. The terminal command must ensure that the soldiers involved in a marine terminal operation are prepared to meet this challenge.

Water terminals are critical logistic installations that are high-value targeted and must be safeguarded by both active and passive means. These terminals will be susceptible to air and missile attack, hostile unconventional forces, sabotage, terrorism, mining, and espionage.

The S3 is responsible to the terminal commander for planning the defense of the terminal. This plan will be in coordination with any of the following:

- ❑ US Navy.
- ❑ US Coast Guard.
- ❑ HN civil defense forces.

Most harbors and ports are physically laid out so that limited dispersion can be achieved within the boundaries of the port itself. Dispersion within an established terminal does not permit maximum port use. However, it does allow the commander to take partial advantage of the many port facilities without unduly endangering the mission. The extent to which the commander uses the established terminal represents a calculated risk. He must carefully evaluate the probability of an attack that could destroy the port and consider its subsequent effect on the theater logistical plan. Further information can be found in FM 55-50, Chapter 1.

Port Security

Port security refers to the safeguarding of the cargo and equipment that is discharged from the ships. The responsibility of port security belongs to the port commander. Availability of existing port security elements determines whether the port commander deems augmentation to be necessary. Those security elements already present might consist of security fenses, controlled storage areas, warehouses, electronic surveillance, and alarms.

A Reserve Component Port Security Company may be required to augment. existing port security elements. The PSC works for the physical security officer within the S3 section of a terminal battalion or group.

The PSC administers the port commander's physical security plan. The goal of the plan will be to keep unauthorized personnel out of the area. Such persons may engage in sabotage, petty and large-scale theft operations, and establishment of inside contacts with foreign nationals or others working in the terminal or marshaling yards.

Cargo

The amount of containerized cargo, break-bulk cargo, and rolling stock greatly influences the transportation plan. In peacetime, the estimated ratio of containerized to noncontainerized traffic is 80:20. In wartime, the large volume of unit equipment to be deployed initially reverses this ratio, but as the theater matures, the original ratio resumes. Packaging dictates a need for specialized equipment and trained personnel. Cargo handlers may need to construct special slings and bridles to move heavy, outsize, or special cargo. Some cargo requires covered storage sites. Dangerous or hazardous cargo requires careful handling, segregation, or possibly a separate and isolated terminal. A great amount of ammunition is transported through marine terminals. The transportation planner must evaluate the terminal operation plan to project which areas will handle shipments of ammunition and other hazardous cargo. Ammunition requires special equipment such as electric forklifts. Ammunition should be stored in a segregated area. QSTAG 590 standardizes markings and handling and storage instructions for cargo consignments and international transport of military cargo.

Theater Geophysical Characteristics

Terminal planning to support a TO requires a study of the geophysical characteristics of the total theater. Physical characteristics and layout of the port and/or beach must be considered, as well as the logistics support requirements determined by the overall scheme of operations. Highway and inland waterway networks must be studied relative to their locations as well as those of supported and supporting units. Terminal units must be selected to operate terminals and terminal transfer points. In both planning and operation phases, the mission, personnel, and physical facilities must be balanced. This may involve using beaches, rehabilitating destroyed or damaged piers, constructing new piers, upgrading unimproved port facilities, and/or using indigenous or contract labor and equipment.

Personnel and Equipment Requirements

Using the ship and the terminal service company as basic factors, the personnel and equipment requirements may be determined. Upon defining these needs, planners can estimate requirements quickly and accurately for pier and/or beach operations.

OPERATIONAL PLANNING

The plans, operations, and security section of the terminal battalion begins planning immediately on mission assignment. The mission to discharge a specific ship is accompanied by the ship's papers (cargo stowage plan, hatch lists, and ocean manifest) and the cargo disposition instructions. Initial planning is based on these papers and available personnel and equipment. It includes determining the following:

- ❑ Point of discharge (wharf or anchorage).
- ❑ Piloting services.
- ❑ Types of terminal units required.
- ❑ Tugboat requirements.
- ❑ Equipment required for special or heavy lifts.
- ❑ Priorities of discharge, if any.
- ❑ Arrangements for terminal clearance, including transportation required and the need for temporary holding or further segregation.
- ❑ Security and safety requirements.
- ❑ Spill contingency plans including emergency supplies and equipment for containing and disposing of hazardous material spills.
- ❑ Estimates of hatch and/or vessel completion times.
- ❑ Considerations of specific ship characteristics. For example, shore cranes may be used to stage flat racks and/or sea sheds for fast sealift ships.

AMMUNITION AND HAZARDOUS AND/OR CLASSIFIED CARGO

Army terminal operations will involve movement, handling, and storage of hazardous materials through

areas which are particularly sensitive to environmental damage. Preventing damage to the environment must include attention to accidental and routine operational causes as well as enemy action and sabotage.

The special requirements for handling ammunition, explosives, bulk fuel, and other hazardous cargo must be planned for along with port restrictions such as the vessel's NEW. Provisions must be made for classified storage facilities. Personnel must be properly cleared to handle classified cargo. Constant coordination is needed between terminal operators and ammunition units for inspections, unloading, clearance, courier service, safety, and special security requirements for conventional and special ammunition entering terminals. Special requirements governing the transport and handling of military explosives and other hazardous cargo aboard vessels and in ports are in CFR 49. Special shipping instructions for military biological research material and hazardous cargo are in AR 55-228. (See AR 700-65 for nuclear weapons and nuclear weapons materiel.) For hazardous chemical shipments, FM 101-40 requires a munition safety control (technical escort) unit to guard shipments, protect personnel handling the shipments, and dispose of damaged munitions and decontaminated objects and areas accidentally contaminated during shipment. TM 3-250 and TM 9-1300-206 give details on handling chemicals and ammunition. FM 3-5 gives information on decontamination. FM 8-285 gives first aid instructions for individuals exposed to chemical agents. NAVORD-OP 5 gives details on loading and stowing ammunition and explosives aboard ship.

TERMINAL CAPACITY

There are seven basic types of dry cargo, nonbulk terminals. They differ drastically in their intended purposes and layout. Matching them with the right type of ship and cargo packaging, results in their intended efficiency. The seven types include the following:

- ❑ Break-bulk.
- ❑ RO/RO.
- ❑ Container.
- ❑ Container and/or RO/RO.
- ❑ Combination.
- ❑ Lighter.
- ❑ Passenger.

Terminal throughput capacity estimation is a very careful evaluation of five functional areas (see Table 3-2). These areas include reception, discharge, transfer, storage, and clearance. Threat, weather, labor, and other factors that are not functions of the estimating process must also be considered. The five functional areas are described below.

Reception

This capacity is based on the number of ships (by type, length, and draft) that can be berthed in a harbor or at a terminal.

Fixed berths. The best type of ship and an alternate for this berth depend on the type of terminal at the berth; for example, container, break-bulk, and RO/RO.

Vessels require 75 to 100 linear feet of berth length in addition to their measured LOA. Therefore, the longest vessel or combination of vessels must be 75 to 100 feet less than the length of the berth. The minimum water depth alongside the berth at mean low tide determines the maximum allowable draft for vessels at that berth. A ship should always have at least 2 feet under its keel for safety of the vessel.

Anchorage berths. For military planning, ships anchor either offshore or in-the-stream (harbor). Other methods exist, but these two are used for military purposes so the ship can get underway quickly. Use the following formulas to determine the required size (diameter) of an anchorage site for a ship:

Offshore: $D = 2(7d + L)$

In-the-stream: $D = R(4d + 2L)$

Where:

D = diameter
d = depth of water
L = length of ship
R = reserve factor (1.1)

Use the following formulas to determine the largest ship that will fit properly in a given area:

Offshore: $L = \frac{D-7d}{2}$

In-the-stream: $L = \frac{D - 4d}{\frac{R}{2}}$

Table 3-2. Terminal throughput capacity estimation checklist

COLLECT THESE DATA:	COMPUTE THESE FACTORS:	TO DETERMINE:
• Channel depth • Channel width • Length of berths • Type of berths (such as quay, pier, and mole) • Diameter of anchorages • Depth of water at berth • Type of terminal at berth	(1) Marine terminal reception capacity	
• Discharge equipment on board • Discharge equipment ashore • Width of apron • Special lift equipment • Number of discharge equipment	(2) Marine terminal discharge capacity	
• Type of cargo • Type of cargo-handling equipment • Round-trip distance • Number of cargo-handling equipment	(3) Marine terminal transfer capacity	Marine terminal throughput capacity for importing cargo only.
• Intrinsic capacity • Average dwell time • Operating capacity • Terminal facilities • Stacking methods • Equipment used	(4) Marine terminal storage capacity	(Retrograde operations will reduce the import capacity.)
• Clearance conveyance by mode • Terminal equipment and personnel • Gate capacity	(5) Marine terminal clearance capacity	
NOTE: Once all of the above evaluations are completed, then evaluate the following: threat assessment, affect of the elements, and training level of labor.		

Discharge

The cumulative amount of cargo that can be discharged from each of the berths is-terminal discharge capacity. This is an evaluation of discharge facilities and equipment found on the berths as well as on the type of ship to be docked on the berths. It is expressed in STONs, containers, MTONs, square feet, or numbers of personnel.

Break-bulk berth. With the berth operating on a 24-hour basis at 75 percent availability of CHE, 2,500 STONs of break-bulk cargo can be discharged each day per berth.

Lighters berth. Using one crane per lighter during discharge operations, the berth can discharge 300 STONs of break-bulk, 450 STONs of ammunition, or 200 containers per day.

RO/RO berth. Loading and discharging areas for various classes of RO/RO vessels vary greatly. Since MSC vessels are loaded under conditions more likely to be encountered during a military contingency, their short-term rate of 600 MTONs or 3,898 square feet of cargo per hour is recommended for planning purposes. A RO/RO terminal should have 10 acres of open hard surface space with at least a 100-foot apron.

Underdeveloped container berth. The discharge rate of 300 containers per day applies when off-loading or loading containers using US Army heavy lift cranes working at anchor alongside a ship in an underdeveloped fixed port. If back-loading is conducted at the same time as off-loading, the back-loading rate equals about one-half of the discharge rate for off-loading only. This berth should have at least a 100-foot apron.

Developed fixed container terminal. When using container-handling cranes at a fully developed container facility, the simultaneous discharge and loading rate is between 700 and 800 containers per 24-hour period. The rate of discharge at any container terminal depends on the type of CHE, type of ship being worked, and the number of container cranes used. The number of cranes per terminal and berth often varies between terminals. The size of the container does not affect the rate of discharge. If container-handling and transport equipment is available, all containers can be handled at the same rate.

- ❑ LASH. The average ship discharge rate is one lighter every 15 minutes and one container every 3 minutes.
- ❑ SEABEE. The average ship discharge rate is two barges every 25 minutes and one container every 3 minutes (if containers are carried in lieu of barges on the main deck).

Computations. Capacity is based on the capability of discharge methods and equipment used. Historical reports, shipper's reports, and realistic evaluations help in the estimation. The shortage of personnel must also be considered. Figure 3-1 is a sample worksheet for discharge capacity.

Transfer

This is an evaluation of the capacity to move cargo from the discharge point to the storage point. It can be a time, equipment, and motion study that considers the number of moves available. For example, transfer capacity is the time it takes to move a pallet of cargo from the ship's side to the storage area, deposit it, and return to the ship's side. It is measured the same as the discharge capacity. Transfer capacity is used twice (once for the lighterage and once with the MHE on the beach) when discharging ships at LOTS sites or anchored in the stream.

Storage

This is the amount that can be stored at any one time. Storage capacity is given as an intrinsic capacity to obtain the operating capacity. The operating capacity depends greatly on the average dwell time of the cargo. Some cargo space must be left empty so that space is available to move cargo. Experience shows that congestion in the storage area begins at about 60 percent and is complete at 80 percent of the intrinsic cargo capacity of the terminal.

Clearance

This is the ability, measured like discharge capacity except by mode, to clear cargo from the terminal. The terminal clearance capacity may be limited by either of the following:

- ❑ Number of clearance conveyances.
- ❑ Ability of terminal equipment and personnel to load clearance conveyances. Clearance conveyances for military purposes includes, but is not limited to, trucks, railcars, lighters, and helicopters.

Throughput

In every instance, the least of the discharge, transfer, or clearance capacity is the terminal's throughput capacity. All capacities must be estimated carefully considering all aspects of the situation even if the limiting capacity is obvious. This makes it possible to determine where improvements can generate the greatest increase in throughput capacity.

	BERTH	CONTAINERS	STONS	MTONS	SQ FT	PERS
TOTAL						

Figure 3-1. Discharge capacity worksheet

SHIP DESTINATION MEETING

In a war environment, surface shipping destined for a major overseas theater may move in Navy-controlled convoys or under Navy supervision. This results in wide fluctuations in terminal workloads as ships arrive in groups rather than individually. Careful advance planning and constant coordination are required to determine where each ship should be discharged and to what destinations its passengers and cargo should be shipped. The overall destination of shipping is determined at the TA staff level.

The TA DCSLOG conducts periodic meetings to decide detailed ship destinations. These meetings are held early enough for operating echelons to complete planning before the vessel arrives. Normally present at these meetings are representatives of the TA staff, the MCA, TA MMC, the principal mission commands, the US Navy, and the MSC. HN and allied forces also attend. The TRANSCOM commander is normally accompanied by his terminal commander. The terminal commander provides information on current and projected marine terminal capabilities.

Incoming ships are directed to specified terminals for discharge based on the workloads of theater terminals, the relative location of depots for inbound cargo, throughput cargo, and the capabilities of segments of the transportation system. Upon determining the terminal of discharge and based on cargo destination information furnished by the inventory control center, the TAMCA issues cargo disposition instructions and determines the mode of transport to move cargo from the terminal of discharge to its destination. This information, along with vessel manifest information, is relayed to the terminal battalion responsible for the terminal where the vessel is to be discharged. This plan is included in the TA movements program. Extracts are furnished to the consignee and to interested transportation movement control activities so they can

plan to receive the cargo. Based on cargo disposition instructions, the terminal battalions plan and give specific assignments to terminal units for discharge of vessels and terminal clearance.

After the disposition of the incoming ship is decided, the terminal brigade or group must coordinate a number of actions before ship discharge and port clearance operations can commence. These actions mainly consist of the following:

❑ To receive detailed cargo disposition instructions for military and civilian aid cargo, including diversions and detailed routing instructions from the TAMCA.

❑ To arrange clearance of personnel and cargoes directly forward, bypassing rear area facilities.

❑ To assign individual ship berths.

Ship berth assignments require coordination with local MSC representatives and may also involve local HN authorities. The assignments are usually made at the terminal battalion level. Detailed disposition and routing instructions for personnel, US allied military cargo, and military aid cargo, require coordination with the MMC, the MCA, the PERSCOM, and the recipient nation or allied command. Liaison officers attached to the terminal group coordinate the latter. Disposition of civilian aid cargoes requires liaison with government representatives of the recipient nation. Foreign liaison officers and US civil affairs personnel may assist in this matter. The TAMCA provides detailed routing instructions for US military cargo and has MCTs at each discharge site to assist terminal personnel.

VESSEL UNLOADING

Based on the vessel manifest and cargo disposition instructions received, the terminal battalion plans the discharge of individual ships before their arrival. This planning includes the following:

❑ The specific location to be used within the terminal.

❑ The method of discharge (floating or shoreside cranes, pier or offshore discharge, and the order of hatches and cargo within the hatches to be worked).

❑ The designation of specific units to work each vessel.

The operating terminal battalions work closely with the local transportation movement teams. The terminal battalions ensure that variations from the vessel discharge plan are coordinated with clearance mode operators. Proper coordination prevents unnecessary delays in port clearance.

Detailed procedures and techniques for unloading cargo vessels are in FM 55-17. A terminal service company is assigned the mission of unloading cargo from a vessel. Before moving or unloading cargo, a boarding party boards the ship to coordinate with the vessel master. In small operations or when the vessel calls on the port frequently, the boarding party may consist of only the boarding officer (normally the battalion operations officer or terminal service company commander). During this visit and inspection of the ship and cargo, the boarding party may decide to alter the discharge plan made before the ship arrives. Unforeseen conditions such as damage to the ship's gear, unexpected priority cargo, or oversize or heavy lifts not noted on advanced stow plans, may change the initial discharge plan. In more complex operations or when the ship calls on the port infrequently, the boarding party may be composed of any or all of the following personnel:

❑ Terminal operations officer. He determines and reports the general condition of the ship's equipment and facilities. He also delivers pertinent terminal regulations and the terminal commander's orders to the vessel master and to the military troop commander. He obtains copies of the ship's papers when advance copies have not been received and determines major damage to or pilferage of cargo. He also obtains other information pertinent to unloading the vessel's cargo.

❑ Customs representative. He checks for clearances, narcotics, weapons, and contraband and performs other necessary customs activities according to theater directives and HN laws.

❑ MSC representative. He determines from the ship's officers the requirements for repairs, fuel, and storage. He also delivers MSC instructions to the vessel master.

❑ Surgeon and/or veterinarian. He checks for communicable diseases, sanitary conditions of personnel spaces and facilities, and condition of perishable cargo.

❑ Harbormaster. He coordinates matters on berthing, tug assistance, and employment of floating cranes and other harborcraft under his control.

❑ Ship platoon leader. He coordinates the detailed plans for cargo loading and unloading.

❑ Lighterage unit representatives. He coordinates plans using lighters to unload vessels at anchorage berths.

❑ Troop movement officer. He coordinates plans to move troop units or casuals through the terminal.

❑ MP representative. He determines the needs and plans for providing MP support required during unloading and debarkation operations.

Although the boarding party coordinates with the vessel master when the ship first arrives, the vessel master normally designates one or two of his officers for coordinating operational matters. Frequently, the vessel master may direct that he or his representative be notified of changes in stow plans, when ship's gears are rigged or spotted, when hatches are opened or closed, when heavy lifts are rigged, or when the vessel sustains any damage. It is not unusual for vessel masters to insist that the ship's personnel rig the ship's gear, open and close hatches, or even operate winches. These requirements should be coordinated early in operational planning and the special requirements noted in the ship's files so planning for subsequent discharge operations is easier.

PRODUCTIVITY

Chapter 2 specifies the capabilities of the terminal service companies (container/break-bulk). Procedures for computing terminal throughput are in the terminal capacity paragraph. These production figures are adequate for long-range or general planning. However, they are inadequate for the short-range planning needed to determine such things as shift production or estimated time of completion for individual hatches.

The production capabilities for the break-bulk and container terminal service unit are based on the production from working five-hatch, break-bulk cargo ships and commercial container vessels. In a developed marine terminal, operations might entail discharging watercraft and barges in addition to general cargo, RO/RO, and containerships. Production figures for these smaller carriers vary significantly from those of the larger vessels and are therefore developed locally.

Many factors affect production during discharge operations. Weather, sea state, visibility (fog and darkness), crew experience, the type of lifting gear (shore crane or ship's gear), cargo stow tactical situation, and terminal congestion and packaging all affect discharge productions. The sum of these positive and negative influences results in the number of lifts that can be obtained per hour. Lift capacity can be computed by hatch or for the entire vessel. It can be obtained by timing the lifts for a specified period or by computing information from tally sheets at the end of a shift.

Many factors may influence actual cargo discharge production. Unit productivity specified in applicable TOE is adequate for general planning purposes. However, it should not be used to measure unit efficiency. The fact that a unit does or does not discharge 2,500 STONs per day may have little relationship to real efficiency without adequately considering the factors mentioned in the previous paragraph. These factors and others promote or detract from actual productivity. Unit efficiency must be judged on the basis of factors and conditions as they affect a specific discharge operation. Attaining 2,500 STONs of production is insufficient if a majority of the unit was idle or less than gainfully employed, or if the operation was inefficient as reflected by unnecessary or excessive nonproductive time. On the other hand, attaining a lesser tonnage production might be considered exceptional if accomplished under less than ideal circumstances (such as operational variables and difficulties and insufficient TOE). Personnel responsible for managing cargo discharge and port clearance operations must constantly evaluate those operations to improve efficiency and productivity. Assigning a terminal service company to work a general cargo vessel would waste manpower if all hatches were not scheduled to be worked. On the other hand, an extra gang or shift on a long hatch might result in the ship sailing a day earlier than normal operations might allow. In the case of unit moves on RO/RO vessels, productivity may increase if personnel from the moving unit unlash rolling stock (wheeled vehicles) and drive vehicles off the ship under the supervision and direction of terminal service personnel. This procedure allows the bulk of the terminal service personnel to work, in total or in part, another vessel. Unit productivity and efficiency is vastly improved.

CARGO CLEARANCE

The MCT representative coordinates with the terminal and mode operators for placement of appropriate

transport at locations and times necessary to clear cargo from the terminal. This is based on the location of and the requirements for transport. Cargo clearance is the act of moving cargo from shipside or temporary storage to its first destination outside the terminal operating area. This first destination may be the final destination or it may be a rear area depot. Destinations will be identified in the cargo disposition instructions.

Ideally, heavy maneuver units will move their tracked vehicles from the port to follow-on staging areas by means of nondivisional HETs. The division MCO will coordinate for these assets through the Corps MCC.

Nondivisional HETs will be allocated in accordance with mission priorities. The use of nondivisional HETs will be augmented by divisional HETs when necessary. Throughout movement operations, special emphasis will be placed on preserving unit integrity. If sufficient HET assets are unavailable to complete the mission, heavy maneuver units will use division or corps medium trucks to move lighter tracked vehicles. Coordination for these assets will be made through the division MCO. Use of division or higher HET assets may be augmented by other modes of transportation, such as rail. In a situation where tactical considerations are not paramount, it may be ideal to move heavy units by rail. However, in a tactical environment in which flexibility and responsiveness are essential, the use of HETs will be maximized.

Prompt clearance of cargo is important. It is essential to the efficiency and success of the total theater logistics systems. It is also necessary to avoid congestion in the terminal area. A continuing cargo backlog feeds on itself and slows operations to a point that the entire terminal effort collapses. Also as cargo builds in the terminal, it reduces the amount of dispersion that can be achieved. This increases the security risk. It also increases the requirements for camouflage and deception schemes to provide operational security.

The most efficient method of clearance is to discharge cargo directly from the ship to clearance transport. However, operating conditions often do not permit this. The following conditions may prevent direct clearance from shipside:

- ❑ Cargo that cannot be segregated without delaying operations.
- ❑ Special situations that require segregation by time, lot, or weight.
- ❑ Lack of proper transport.
- ❑ Inability of receiving installations to accept cargo.
- ❑ Delays in receiving cargo disposition instructions.

When such conditions exist, cargo should be moved to temporary in-transit storage areas. Temporary in-transit storage areas are usually next to or very near the pier discharge area. Cargo should never be placed in temporary in-transit storage areas until every effort has been made to clear it from the terminal. If temporary holding is necessary, the cargo held should not exceed one day's discharge. It should be cleared from the terminal at the earliest possible time. If the amount of cargo in the temporary in-transit storage areas becomes excessive, a terminal transfer element (platoon or company) should be attached to the terminal service company to load clearance transport equipment as it becomes available. The number and location of temporary in-transit storage areas within the terminal depend on many factors. Some of these factors consist of the following:

- ❑ Availability of suitable sites.
- ❑ Type and quantity of cargo to be discharged.
- ❑ Equipment and personnel available.
- ❑ Location and modes of transportation used in the terminal clearance operation.

The areas should have a hard, all-weather surface and should be located between the discharge points and the inland transportation net. This would permit efficient use of MHE to move cargo from shipside to the area, within the area, and from the area to the transportation net. Emergency supplies and equipment for containing hazardous material spills should be readily available at or near temporary storage areas.

VESSEL LOADING

The main function of a terminal operation organization in a theater is the reception, offload, and transshipment of personnel and material. However, sometimes personnel and supplies must be loaded aboard vessels. These outbound movements may vary from small- to large-scale shipments of cargo and/or personnel. The terminal commander's responsibility for outbound cargo is essentially the same as for inbound cargo. The main difference is that the operation is performed in reverse order. It includes initiating port release; booking, receiving, and stowing cargo; and preparing necessary documentation. The terminal

group commander assigns the loading mission to a terminal battalion and coordinates as necessary with the MSC.

The transportation element of the TA DCSLOG, sets up procedures to move freight from points within the theater to the terminal for further movement to CONUS or other destinations outside the theater. These procedures generally provide for the shipping agency to submit a request through its supporting MCT. Once the TAMCA receives the request, it then coordinates the necessary shipping actions at the periodic ship destination meeting.

The terminal group issues cargo booking information to the terminal battalion operating the selected terminal. This information is used to preplan vessel stowage, storage requirements, and operational workload. When the berthing time of the vessel is definitely established, the battalion assigns the loading mission and sends the subordinate units information on the following:

- ❑ Location of the loading berth.
- ❑ Time that loading is scheduled to begin.
- ❑ Time that cargo is to be received.
- ❑ Estimated departure date of the vessel.
- ❑ Special cargo to be loaded and MHE required.

Plans are made for the receipt, temporary holding, and movement of cargo to the loading area. The terminal battalion forwards port releases to the shipping agency. Port releases are carefully scheduled to prevent interference with the terminal clearance program and to avoid delays in loading.

When the nature of the cargo has been determined, the battalion prepares a prestowage plan for loading the particular vessel with the cargo. The appropriate vessel authority receives the prestowage plan for approval. Upon the vessel's arrival, the ship's master or his representative receives the plan for final approval. When the vessel is berthed, the holds, hatches, and the ship's gear are thoroughly inspected for any difficulty that might arise during loading operations.

The prestowage plan becomes the basis on which to call cargo forward to the terminal area. In calling the cargo forward, the battalion commander must consider planned loading time aboard ship and the area available for temporary holding if the cargo arrival time and loading time do not coincide. It is desirable to have enough cargo on hand to sustain one day's loading before starting loading operations. This ensures continuous loading in case some shippers cannot meet the planned port call date. Cargo received before the loading time must be moved into temporary in-transit storage areas so as not to interfere with any clearance operations.

Retrograde cargo, such as containers, trucks, tanks, aircraft, SEAVANs, and MILVANs, being returned to CONUS are prepared and processed for CONUS Department of Agriculture quarantine inspection. This is done before cargo is loaded aboard aircraft or vessels. Plans should be made in advance to have adequate cleaning equipment and appropriate insecticide chemicals and rodent poison on hand. This ensures that retrograde cargo can be promptly and properly processed.

DOCUMENTATION

Cargo moving through Army terminals is documented according to DOD Regulation 4500.32-R, Volumes I and II. The basic document for all cargo movements under these procedures is DD Form 1384 (TCMD). This form and its use is described below.

DD Form 1384

This multipurpose form can be prepared manually or electronically. The manual version of the form is a seven-part document. Originated by the shipper for each transportation unit, the TCMD data (not necessarily the document) accompanies the shipment from the origin to the consignee. Detailed procedures for preparing and processing the TCMD and allied documents are in DOD Regulation 4500.32-R, Volumes I and II. STANAG 2166 (see Appendix A) contains standardized movement and transport documents for ship transport. The TCMD is used for the following:

- ❑ To provide advance notice of shipment to consignees.
- ❑ As an airbill, a highway waybill, a dock receipt, and a cargo delivery report.
- ❑ For movement control of shipments worldwide within the DOD transportation system, including in-transit reporting and tracing actions.
- ❑ As a source document for mechanically prepared air and ocean manifests.
- ❑ As a source of logistic management data.

Inbound movements. For ships loaded in CONUS, MTMC transmits information to the discharge terminal and the TAMCA. The TAMCA provides a copy of the manifest to the inventory control center so it may make any necessary changes in consignee or destination of the cargo. The TAMCA incorporates any necessary changes and transmits manifest information to the terminal command element responsible for discharging the ship. Depending on the degree of sophistication of the computer and program the TAMCA uses, hatch tallies and partial TCMDs may also be provided to the terminal element. The terminal battalion reproduces the incoming data in a format and in the number of copies needed to actually discharge the ship. The TAMCA provides detailed cargo disposition instructions.

Upon the ship's arrival, the reproduced manifest is the basis for checking the cargo off the ship. The data on the quantity, identity, and condition of incoming cargo developed by the unloading terminal service unit are used to prepare the cargo outturn message and to reconcile the manifest. Upon reconciliation of the ship discharge data with the manifest, the terminal battalion prepares a cargo outturn report. The terminal battalion forwards the report to group HQ for transmission to MTMC and other interested agencies listed in DOD Regulation 4500.32-R, Volumes I and H. (See AR 55-38 for reporting transportation discrepancies in shipments.)

The above general procedures may have to be modified when ships arrive from theaters other than CONUS. This is especially true if no data processing equipment is available at the loading port. In this case, the manifest is forwarded by airmail or courier to the terminal group, which retransmits it to the designated discharge port. If the sea distance is short, the manifest may not arrive before the ship. Therefore, the terminal battalion responsible for discharging the ship may have to obtain a copy of the manifest from the ship's master.

The TCMD is normally the basic document for checking and documenting incoming cargo. However, other forms, such as tally sheets, may be used for internal accountability. When drafts of cargo are moved away from the ship, the cargo checkers begin internal accountability. Throughout the terminal, cargo checkers check the cargo in and out and direct cargo to its next destination. When cargo is put into the in-transit storage area and/or loaded aboard the clearance conveyance, the TCMD is properly annotated.

The unit commander is responsible for the checkers. He determines how often the cargo must be checked and is accountable for all cargo. The system must be sound and must allow a 'smooth and constant flow of the cargo with an accurate accountability.

Except when cargo is moved directly from shipside to a local consignee, cargo must be reconstituted into transportation units, such as railcar loads or line-haul truckloads, before clearing the terminal area. These units may differ from those in which the cargo left shipside and may require new TCMDs. A copy of these new and more complete TCMDs accompanies the cargo to destination. The TCMD forms the basis for preparing bills of lading, freight warrants, and train manifest as required. The documentation section of the terminal battalion uses the hatch checker's partial TCMDs or tally sheets and the TCMDs prepared to cover onward movement to reconcile the ship's manifest. They are also used to prepare cargo outturn messages and outturn reports. Movement control personnel use them to notify consignees (report of shipment) in advance that shipments are en route and to follow the shipment's progress to destination.

Outbound movements. Procedures for offering cargo for shipment, handling movement releases, and documenting outbound cargo are coordinated between the theater movement control activity and the OCCA. Procedures are subject to theater regulations, as well as AR 725-50 and DOD Regulation 4500.32-R, Volumes I and II. Determination of what moves and its priority is coordinated at the theater movement control activity.

The TCMD covers outbound movements in either manual or automated form. Freight warrants and/or bills of lading cover the cargo if it is shipped to the loading port by commercial means. The TCMD serves as backup for these documents.

When planning for outbound cargo handling, the terminal commander must consider the size of the shipment and the type of cargo. These effect the choice of loading berth, equipment, and personnel. He must also consider the volume and schedule of inbound traffic and clearance requirements.

The terminal service unit actually charged with loading the cargo prepares prestowage plans (which are subject to approval by the MSC) and the ocean shipping documents (manifest, stowage plan, and, if required, hatch lists). Upon receipt of ship loading data from the terminal concerned, the terminal group transmits the cargo traffic message to the discharge port. It also forwards the ship's manifest data to destination by electronic means, airmail, or courier, as appropriate. If more than one loading terminal is involved, each must notify the next terminal of the ship's departure and must manifest the cargo loaded. The last loading terminal prepares the ship's departure message, cargo traffic message, and ship's manifest.

Daily Operations Report

In addition to the documentation required by existing regulations, the terminal group normally requires each terminal battalion operating a port or beach terminal to prepare a daily operations report. This report usually includes the following:

- ❑ Number of passengers embarked, debarked, and awaiting embarkation and debarkation; and the number of passengers to be handled during the next 24 hours.
- ❑ Number of tons (weight and measurement tons) of cargo by major category (general, vehicles, and POL) that have been discharged, loaded, cleared (by mode) and awaiting discharge, loading, and clearance; and the number of tons booked and expected in the next 24 hours.
- ❑ Number of ships which have arrived, departed, remain in port, and are expected to arrive and depart during the next 24 hours; and the status of ships in port, such as discharging, loading, awaiting orders, and under repair.
- ❑ Workload for the previous months and anticipated for the next month.
- ❑ Summaries of available ship berths, number and capacity of lighters and trucks, number of gangs for ship and pier work, covered and open storage space, number or railroad cars that can be accommodated and cleared, and MHE availability.

FLOATING CRAFT MAINTENANCE

Maintenance and repair of floating craft used in marine terminal operations pose problems and require arrangements different than from other types of equipment. Except for amphibians and ACVs that can move inland for maintenance work, maintenance and repair facilities for landing craft and other floating equipment must be located afloat or near the water's edge. Rather than being echeloned along the forward theater axis as in other systems, these facilities are generally spread laterally along the theater's rear boundary. Except for some inland waterway systems, marine maintenance and repair facilities are oriented toward the rear.

A marine engineer technician on the terminal battalion staff is responsible for staff supervision of unit maintenance for all marine equipment in the attached companies. This officer supervises correct recording of maintenance activities within the battalion according to existing directives. He also conducts periodic inspections. He prepares reports of inspections, circulates technical information, and provides technical maintenance assistance when required.

A marine maintenance officer provided on the staff of the terminal group and terminal brigade exercises staff supervision over the maintenance function for the command. The commander of the assigned marine DS/GS maintenance unit also acts as a special advisor on floating craft maintenance to the marine maintenance officer and to the terminal group or brigade commander.

Objectives

The objectives of Army watercraft maintenance are as follows:

- ❑ Early detection and correction of faults that affect safety afloat.
- ❑ Sustainment of an operational readiness posture where this maintenance can be most effectively and economically performed.

More details regarding marine maintenance doctrine can be found in FM 55-50.

Marine Maintenance System

The three-level marine maintenance system provides a flexible, system-oriented supply support structure tailored to the unique character and low density of the single-user Army watercraft fleet. The three levels of watercraft maintenance are marine unit maintenance, marine DS/GS maintenance, and marine depot. All three maintenance levels will be associated with high use of solvents, POL, and other

hazardous materials. Therefore disposal IAW applicable federal, state, local, and HN environmental laws must be planned. Spill contingency plans, emergency materials, and equipment must be maintained.

Marine unit maintenance. This level of maintenance is characterized by rapid turnaround of end items by replacement and minor repair as authorized by applicable maintenance allocation charts. It also provides mandatory parts list stockage and may include direct exchange service. It can be performed entirely by the crew or divided between the crew and a shore-based organizational maintenance section. In the case of landing craft and amphibians, separate TOE sections provide backup shore-based unit maintenance. Tugs, picketboats, floating cranes, and coastal vessels are provided maintenance capacity in single-craft items. Marine unit maintenance functions for these craft are performed entirely by their crews except when grouped into company-size, mission-structure elements. In those instances, unit level, shore-based maintenance cells may be added when required or desired.

Marine DS/GS maintenance. Marine DS/GS maintenance units provide backup supply and maintenance support. They are allocated functions on a return-to-user basis. Maintenance varies for each type of craft due to variances in marine unit maintenance criteria. These units also perform functions considered time-consuming or operationally burdensome for the operating unit. The marine DS/GS maintenance unit provides one-stop support from its base location and forward on-site service via floating maintenance teams. Its maintenance operations are based aboard a floating machine shop located in a harbor or port facility which has a high density of watercraft.

Marine depot maintenance. This level of maintenance is performed by commercial contract, interservice support agreements, or special repair activities. Orientation is toward prompt and effective repair of components and assemblies for return to the supply system. End item overhaul is authorized on a case-by-case basis. During cyclic drydocking, the marine intermediate maintenance facility or unit or contract maintenance inspects, repairs, cleans, and paints the hull.

PERSONNEL MOVEMENT

Personnel moves may consist of casuals or units being deployed or redeployed or may occur as a part of a tactical operation. Personnel moves include inbound (debarkation) and outbound (embarkation) moves.

Inbound (Debarkation)

To plan properly for debarkation and disposition of personnel, the troop movement officer of the terminal group HQ and the commanders of the terminal operating units (battalions and terminal service companies) require certain advance information. This information is obtained from the following:

- ❑ Approved movement programs.
- ❑ Directives of higher HQ.
- ❑ Projected information, such as preembarkation radio messages and lists of personnel waiting in embarkation terminal staging areas for transport to the overseas theater.
- ❑ Passenger lists.
- ❑ Prearrival information.

The movement programs and projected information enable the troop movement officer and the air, rail, and motor transportation planning officer to make advance plans.

Receipt of the passenger list enables the troop movement officer and others concerned to make specific and detailed plans for receiving incoming personnel. The passenger list provides the name, rank, SSN, shipment number, and organization of all personnel aboard a vessel. This is broken down by units, casuals, officers, warrant officers, enlisted personnel, and civilians. This information is needed for the staging areas to prepare for billeting and messing. The staging area commanders notify the troop movement officer and the terminal operating unit commanders of the location of each unit's billet. The air, motor, and rail transportation planning officers are also given this information. Based on this information and the tentative date of the vessel's arrival, aircraft, trucks, buses, and/or rail equipment can be ordered through the MCC. The information contained in the passenger list is distributed to all other interested agencies.

Usually the last item of advance information needed to permit final planning is an accurate forecast of the

ETA of a vessel. An overseas terminal ordinarily receives this in the radio message sent by the ship's master 24 to 48 hours before the ship's arrival.

Coordination is required, at the terminal command level before actual debarkation, to provide the terminal battalion commander with the information and support for an orderly and efficient debarkation. Agencies and personnel concerned with predebarkation planning and coordination include the following:

- ❑ Troop movement officer.
- ❑ Movements officer.
- ❑ Rail transportation planning officer.
- ❑ Air transportation planning officer.
- ❑ Highway transportation planning officer.
- ❑ Provost marshal.
- ❑ Post surgeon.
- ❑ Staging area commander.
- ❑ Replacement regulating detachment (if casuals are involved).
- ❑ Commanders of the terminal operating units assigned this mission.
- ❑ MSC representative.
- ❑ Items requiring coordination include the following:
- ❑ Vessel's ETA.
- ❑ Exact mission assignment, including the vessel's pier or anchorage and lighterage assignment.
- ❑ Time debarkation is to begin and estimated time hold baggage and other impedimenta will be available.
- ❑ Final arrangements for assigning boarding parties and providing adequate facilities for the use of debarking personnel, the order of debarkation, security measures, the traffic control plan, providing adequate transportation to clear the terminal, designating routes to the staging area, and providing escorts if trucks or buses are used.
- ❑ Special information, if any, which may affect debarkation plans, such as the length of time a vessel can remain at the terminal.

After the necessary coordination has been made, the troop movement officer publishes a debarkation order incorporating all final plans. If the ETA is changed after the debarkation order has been published, the troop movement officer obtains and furnishes a new ETA to all interested personnel as soon as possible. The actual debarkation is done by the responsible terminal battalion and one or more of its terminal service companies.

Outbound (Embarkation)

Careful consideration is required to ensure an orderly and efficient embarkation. In addition to the personnel listed for debarkation coordination, embarkation coordination also involves representatives from the embarking units and the military departments aboard the vessel(s). Personnel being returned to CONUS must be processed in advance, according to AR 40-12, to meet the requirement of the CONUS quarantine inspection. Personnel must also be processed for CONUS customs inspection.

Problems that must be resolved to provide the operating unit commander and others with required information and support are similar to those incurred in inbound movements. Detailed plans and final arrangements must be completed for the following:

- ❑ Composition and designation of the advance party and the time it will embark. These advance details should include mess personnel, kitchen police, guards, and guides.
- ❑ Baggage details, arrangements for loading equipment to accompany personnel and any additional equipment that appears on the organizational equipment list. (An officer from each unit or movement order of casuals should be appointed as unit transport baggage officer.)
- ❑ Method of transporting personnel from staging area to shipside and schedules showing time of departure of each unit from the staging area and arrival and embarkation times at the pier.
- ❑ Detailed traffic control arrangements, including MP to escort truck and bus convoys, if necessary.
- ❑ Pier traffic plan.
- ❑ Number of gangplanks to be used in the embarkation of each ship.

COMMUNICATIONS

Efficient command and prompt transmission of information and instructions require a reliable signal communications system. When operations are conducted under dispersed conditions, the problem

becomes more complex due to increased distances between the HQ and its subordinate elements. A good communications system within and between ports, depots, beach sites, control points, and other transportation activities is essential. A wire communications system is preferred, particularly in a static situation. However, radio or motorized messenger service may be used.

Coordinating the complex operations for a terminal group to function properly requires early establishment and continued operation of an efficient integrated signal communications network. Communications requirements are developed on a project basis and vary according to the size and composition of the terminal organization and the number of sites operated.

In addition to the communications traffic needed to operate and administer a terminal group and its subordinate units, a requirement may exist for direct visual and radio communications with incoming or outgoing military-operated or military-controlled vessels. This is for information concerning berthing, anchoring, movement, and status or for other operating instructions or information. When such a requirement exists, it is developed on a project basis. Details involving planning, technical matters, supply, and personnel (including security, training, and operational procedures involving signal equipment and communications systems) are coordinated by the signal officer according to policy established by the commander. The communications officer plans and coordinates the establishment of radio and telephone circuits to and between the terminal group and subordinate battalions. Due to the large volume of traffic generated by subordinate terminal units and the urgency for prompt transmission, total reliance on long signal lines is not feasible.

Good communications must exist within a terminal service company when discharging and/or loading a ship. Hand-held wireless communications are required by hatch crews, crane operators, signalmen, hatch and ship platoon leaders, as well as those on the shoreside facilities. Good communications solve problems much quicker, and the cargo flow is smoother.